

REMARKS

Claims 1, 3-21 and 23-25, stand in the present application. Reconsideration and favorable action is respectfully requested in view of the following remarks.

In the Office Action, the Examiner has rejected claims 1-6, 8-21 and 23-25 under 35 U.S.C. § 12(b) as being anticipated by Corne et al. (Corne), and has rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Corne in view of Buckzak et al. (Buckzak). Applicant respectfully traverses the Examiner's §§ 102 and 103 rejections of the claims.

In applying the Corne reference against the independent claims 1, 14, 21 and 23-25 the Examiner has misinterpreted the teachings of Corne, and has further misinterpreted the present claims. More particularly, at page 3 of the Office Action, the Examiner states that in Corne "[t]he nodes in the network are resources." It would be more accurate to consider the links between the nodes as the critical resources for the problem addressed by Corne, since each of the three objectives which Corne is seeking to optimize concerns the links rather than the nodes. See Corne at page 12, lines 26-30 wherein the three stated objectives a) b) and c) all concern the links.

Furthermore, Figure 2 of Corne illustrates the network whose routing is to be optimized as having 11 links (7 nodes). It is noteworthy that Corne defines its fitness vector as having three elements, and that each element of the fitness vector is an equation – namely, equations 1, 2 and 3 set out on pages 13 and 14 of Corne – which can be evaluated for any given possible solution to arrive at three numbers which then form the elements for any given individual fitness vector for a given "solution."

Moreover, the equations are generally summations in respect of all of the links in the network so as to arrive at functions which are indicative of the global situation, rather than being indicative only of a local solution pertaining only to a single resource.

With respect to the rejected claims, the Examiner alleges that the claim term "groups" is not further defined in the claims and so that it is reasonable for the Examiner to read the "objectives" of Corne as equivalent to the groups of Applicant's invention. See Office Action at pages 3 and 11. Applicant respectfully disagrees with the Examiner's assertion. In fact, there are many limitations on the term "groups" throughout each of the present claims which make it improper for the Examiner to interpret the objectives of Corne as being in any way equivalent to the groups disclosed and claimed in Applicant's inventions. First, the term "groups" is defined (and therefore limited) in multiple elements including the preamble of the relevant claims. For example, the preamble of claim 1 specifies a "method for optimizing the allocation of a set W of n tasks to m available resources for accomplishing such tasks using combinatorial multimodal optimization for finding multiple optimal ways of dividing said set W of n tasks into m respectively groups associated with said resources" and the preamble of claim 21 specifies substantially the same method. This makes it clear that there are to be as many groups as there are resources (in particular m of each) and that each group is associated with a particular resource (hence the modifier "respectively"). This is a clear limitation on the meaning of the term "groups" which appears in these claims.

The claim term "groups" is further defined and hence limited at step (b) of claims 1 and 21 "calculating for each trial solution a fitness vector comprising m elements, each of which is indicative of whether the constraint condition of a corresponding respective one of the m groups has been satisfied by the trial solution." Use of the word "the" preceding the claim term "groups" makes clear that Applicant is referring back to the "groups" referred to in the preamble of the claims, as discussed above.

Furthermore, it is clear that there are m groups where m is the number of resources and it follows that there is a corresponding group for every resource and there are m of each, i.e., m resources and m groups with each group corresponding to a respective resource. Once an optimized solution has been found, each group of tasks will be assigned to its corresponding resource.

On the other hand, as noted above, while Corne discloses 11 links (and 7 nodes) how many objectives are there? There are 3 objective functions, but 3 does not equal 11 (nor 7). There is not a corresponding respective objective function associated with each resource – if there were there would have to be more than 3 objective functions since the number of resources is 11 (if you take the resources to equal the links, or 7 if you take the resources to be nodes as the Examiner has suggested). Since each "group" of Applicant's claims have a corresponding respective resource and since each objective function of Corne does not have an associated resource it stands to reason that the objectives of Corne do not correspond to the claimed groups of Applicant's invention.

Furthermore, even if the objectives of Corne did correspond to the groups of Applicant's claims, the present claims further require that the fitness vector has m elements – however, in Corne the fitness vector has only 3 elements whereas m (which is equal to the number of resources) equals 11 (if the resources are links, or 7 if the resources are nodes) so Corne also does not satisfy the requirement in the present claims that the fitness vector has m elements.

The above arguments have been specifically addressed to independent claims 1 and 21 which expressly recite the claim term "groups." However, the same arguments are applicable to independent claims 14 and 23-25 which have wording along the lines of ". . . elements each of which is indicative of whether the associated constraint of a corresponding respective one of the [plurality of devices or multiple computer processor devices] has been satisfied by the trial solution." This claim wording again requires that there are (at least) as many elements as there are "resources" where the "resource" in question depends upon the particular claim (e.g., in claims 14 and 23 its "devices" in claims 24 and 25 its "processor devices"). Again, in Corne there are only three objectives and each fitness vector correspondingly has only 3 elements and so Corne does not have "elements each of which is indicative of whether the constraint of a corresponding one of the multiple devices/processor devices . . . " rather each element in Corne is indicative of the global extent to which a particular global objective function has been met. Thus the same arguments apply for independent claims 14 and 23-25 as for independent claims 1 and 21.

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For all of the above reasons, it is respectfully submitted that Corne does not anticipate the present claims. Applicant's claimed solution provides a useful technique for approaching a certain type of problem which is not taught or even suggested in Corne. Accordingly, independent claims 1, 14, 21 and 23-25 and their respective dependents claims are believed to patentably define over Corne.


Moreover, it should be clear that Buczak does not overcome the deficiencies noted above with respect to Corne. Accordingly, all of the present claims are believed to patentably define over the cited art taken singly or in combination.

Therefore, in view of the above remarks, it is respectfully requested that the application be reconsidered and that all of claims 1, 3-21 and 23-25, standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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